

Chapter 6 — ISDN BRI trunk implementation

Note: ISDN BRI trunk access is not supported in North America.

Introduction

This chapter describes the implementation of the Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) trunk service, the associated equipment, installation procedures and software programming procedures for the Option 11 system.

This chapter is divided into the following sections:

- ISDN BRI trunk access
- Hardware requirements
- Installing ISDN BRI hardware
- ISDN BRI trunk software programming

ISDN BRI trunk access

ISDN BRI trunks may be configured for either local exchange/CO/DID trunk connectivity, MCDN Tie trunk connectivity, or QSIG trunk connectivity. ISDN BRI trunk connections are configured on a per DSL basis, that is, DSL trunk connections may be configured on any given DSL for any SILC or UILC. The trunks can be accessed using both ISDN BRI terminals and non ISDN BRI devices (such as digital and analog telephones).

ISDN BRI Local exchange CO/DID connectivity is accomplished via a MISP card and an S/T interface, using the SILC line card. This connectivity is supported for Numeris VN3, 1TR6, ETSI NET-3 (EuroISDN), INS NET-64 (Japan D70), and Asia-Pacific protocols; refer to Figure 38.

ISDN BRI MCDN Tie trunk connectivity is achieved via a MISP card and either S/T or U interfaces, using the SILC and UILC line cards respectively. This connectivity may be:

- between two Meridian 1 PBXs through a local exchange acting as a passive facility; the local exchange must support Numeris VN3, 1TR6, ETSI NET-3 (EuroISDN), INS NET-64 (Japan D70), or Asia-Pacific protocols; refer to Figure Figure 39.
- directly between two Meridian 1 PBXs; refer to Figure 40 and Figure 41.

ISDN BRI QSIG connectivity is achieved through an MISP card and either S/T or U interfaces, using the SILC and UILC line cards respectively. This connectivity is supported within a Private Telecommunications Network (PTN) between two Private Telecommunications Network Exchanges (PTNXs); examples may be a Centrex-to-Centrex connection, or a Centrex-to- PBX connection; refer to Figure 42 in the section “ISDN BRI QSIG connectivity” on page 245.

Note: The BRSC cannot be utilized for ISDN BRI trunk access.

These configurations are explained in greater detail in the sections that follow.

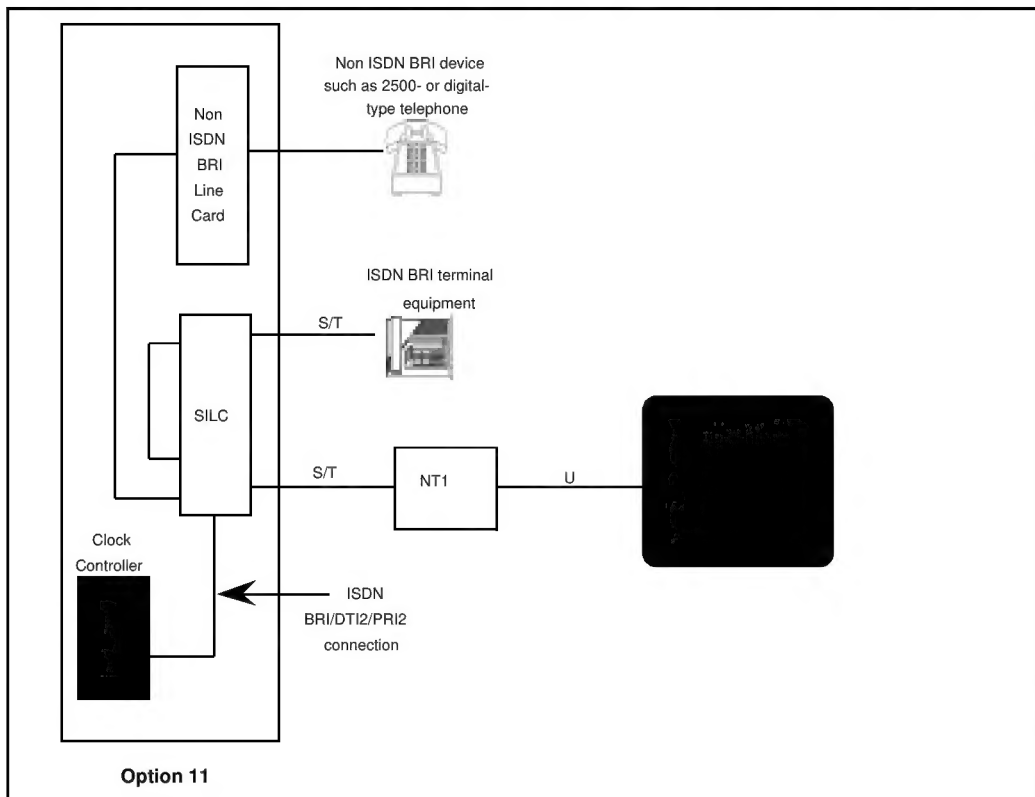
ISDN BRI local exchange/CO/DIDconnectivity

ISDN BRI Local Exchange connectivity is supported in markets equipped with local exchanges that conform to Numeris VN3, ITR6, ETSI NET-3 (EuroISDN), INS NET-64 (Japan D70), or Asia-Pacific protocols. This connection is accomplished through the SILC line card, with the designated DSL configured in the Terminal Equipment (TE) Mode. This configuration requires that the PBX acts as terminal equipment to the Local exchange. The interface from the PBX, looking towards the Local exchange is always an S/T interface.

Figure 38 illustrates the ISDN BRI local exchange connectivity.

Figure 38

ISDN BRI trunk access local exchange connectivity — not supported in North America



The ISDN BRI DSL is connected to a Network Termination (NT1) device which is physically located on the same premises as the Option 11. The NT1 device connects to a local exchange that supports Numeris or ITR6 protocol through a U interface. (The NT1 device is typically owned by the local exchange/Post Telegraph and Telephone allowing the local exchange/PTT to use any type of U interface, including proprietary implementations.)

The distance limitation of the NT1 from the local exchange depends on the distance supported by the local exchange.

Clock synchronization may be achieved by having the Option 11 slave to the Local exchange; the clock source may be derived either from the ISDN BRI local exchange connection or from other PRI/DTI/BRI Local exchange connections if available.

The following Information Elements are supported on ISDN PRI and BRI access trunks (these elements are required for calls between ISDN BRI terminals and local exchange trunks):

- High Layer Compatibility
- Low Layer Compatibility
- Calling Party Subaddress
- Called Party Subaddress

All local exchange connectivity functionality and references also apply to DID trunks.

1TR6 local exchange connectivity

1TR6 local exchange connectivity provides 2B+D connectivity to a local exchange that supports 1TR6 protocol via an S/T interface. The ISDN BRI 1TR6 local exchange connectivity provides the following basic call and supplementary services:

Note: Support for any feature is dependent upon the terminal equipment being used.

- Basic call service
- Circuit switched voice and data on the B-channel
- Calling Line Identification Presentation and Restriction
- Connected Number Delivery
- support for TIE, COT, DID, DOD trunk types
- Channel negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

- Overlap sending
- Flexible Numbering Plan
- Indication of Call Charging to the calling party
- Network-wide interworking with ISDN BRI ETSI terminals

Numeris VN3 local exchange connectivity

The Numeris local exchange connectivity provides 2B+D connectivity through an S/T interface to a local exchange that supports Numeris VN3 protocol. The ISDN BRI/Numeris VN3 local exchange connectivity provides the following basic call and supplementary services:

- Basic call service
- Circuit switched voice and data on the B-channel
- Called/calling party subaddress (network-wide)
- Support for TIE, COT, DID, DOD trunk types
- Channel negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

- 64 kbps clear bearer capability
- Flexible Numbering Plan
- Advice of charge during call and at end of call
- Network-wide interworking with ISDN BRI Numeris terminals

Japan D70 (INS NET-64) local exchange connectivity

The Japan D70 (INS NET-64) local exchange connectivity provides 2B+D connectivity through an S/T interface to a local exchange that supports the D70 protocol (D70 is the Japanese version of the INS NET-64 protocol). The ISDN BRI/Japan D70 local exchange connectivity provides the following basic call and supplementary services:

- Basic call service
- Circuit switched voice and data on the B-channel
- Called/calling party subaddress (network-wide)
- Support for TIE, COT, DID, DOD trunk types
- 64 kbps clear bearer capability
- Flexible Numbering Plan
- Advice of charge at end of call
- Channel Negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

EuroISDN connectivity

The EuroISDN connectivity provides an interface between Meridian 1 PBXs and Central Offices/Public Exchanges that comply to the European Telecom Standards Institute (ETSI) specification ETS 300 102 for the Layer 3. The interfaces provided by this feature also comply with the country-specific Application Documents for Austria, Belgium, Commonwealth of Independent State (Russia and the Ukraine), Denmark, Finland, Germany, Holland, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

The Meridian 1 on the EuroISDN connectivity provides the following call services, for the complying countries:

- Basic call service
- Circuit switched voice and data on the B Channel
- Calling Line Identification Presentation and Restriction (CLIP and CLIR)
- Connected Line Presentation and Restriction
- Calling and connected sub-addresses
- Support for TIE, COT, DID, and DOD trunk types
- Overlap sending and receiving
- Overlap and enbloc dialing
- Flexible Numbering Plan
- Channel negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

Asia-Pacific connectivity

This Asia Pacific Connectivity provides interface between the Meridian 1 and Public Exchange/Central Offices in the following markets:

This Asia Pacific Connectivity provides interface between the Meridian 1 and Public Exchange/Central Offices in the following markets:

- Australia
- China
- Hong Kong
- Indonesia
- Japan
- Malaysia
- New Zealand
- Singapore
- Thailand

The following ISDN features are supported for the Asia Pacific connectivity:

- Basic Call Service
- Calling Line Identification Presentation and Restriction (CLIP and CLIR)
- Circuit switched voice and data on the B-channel (data calls are not supported on the Hong Kong interface)
- Overlap Sending (supported by all except Japan)
- Overlap Receiving (supported by the Indonesia, China, Malaysia, and Thailand interfaces only)
- COT, DID, DOD, and TIE trunk call types, as applicable
- 64 kbps unrestricted digital information
- Channel Negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

- Flexible Numbering Plan
- PRI Route Back-up with BRI routes, and
- Sub-addressing

The following supplementary services are supported for the Australia connectivity only:

- Malicious Call Trace
- Advice of Charge (AOC) at End of Call
- Incoming Trunk Programmable CLID for analog trunks. This feature is available for use in a private or alternative carrier network, as required in Australia.

The following supplementary services are supported for the Indonesia connectivity only:

- Connected Line Identification Presentation and Restriction (COLP and COLR)
- Direct Dialing Inward (DDI/DID)

The following supplementary service is supported for the Japan connectivity only:

- Advice of Charge (considered a basic service)

The following supplementary services are supported for Australian connectivity:

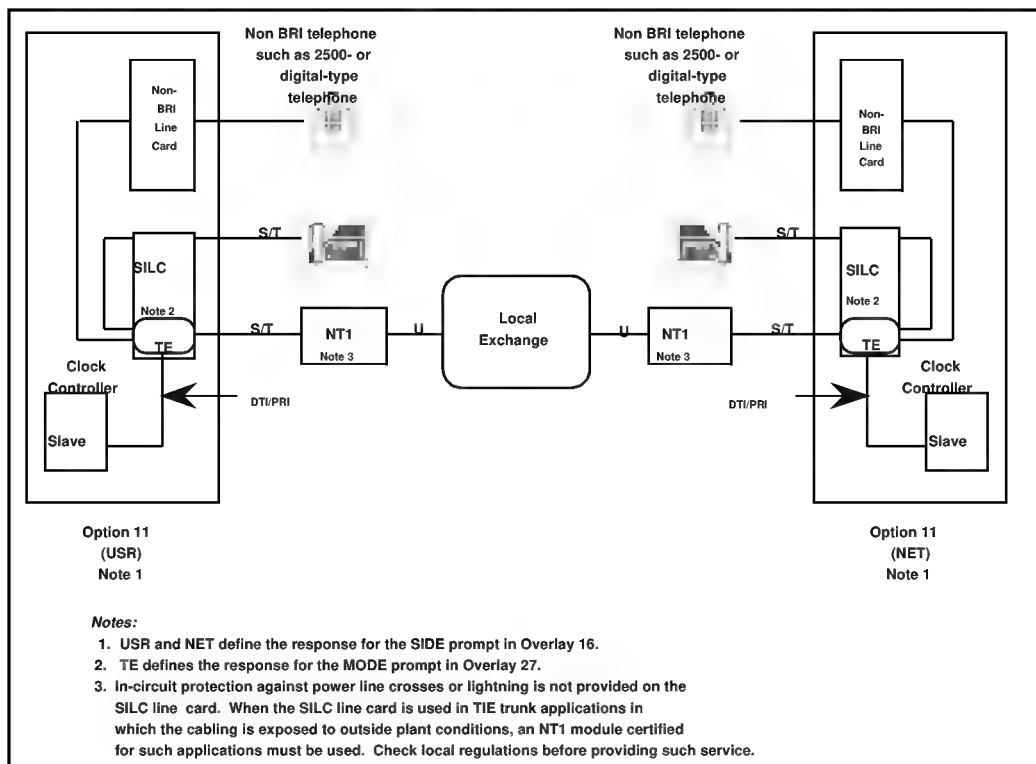
- Malicious Call Trace, and
- Advice of Charge (AOC) at End of Call.

ISDN BRI MCDN Tie trunk connectivity

ISDN BRI TIE trunk connectivity may have three implementations. In the first configuration (refer to Figure 39), a Meridian Customer Defined Networking (MCDN) TIE trunk connection may be implemented by connecting two Meridian 1s to the BRI leased line through the local exchange by way of two SILC cards. The S/T interface is connected to the Local exchange using the NT1 supplied by the PTT.

Clock synchronization may be achieved by having the Option 11 slave to the local exchange; the clock source may be derived either from any ISDN BRI Local exchange connections or from other ISDN PRI/DTI local exchange connections if available.

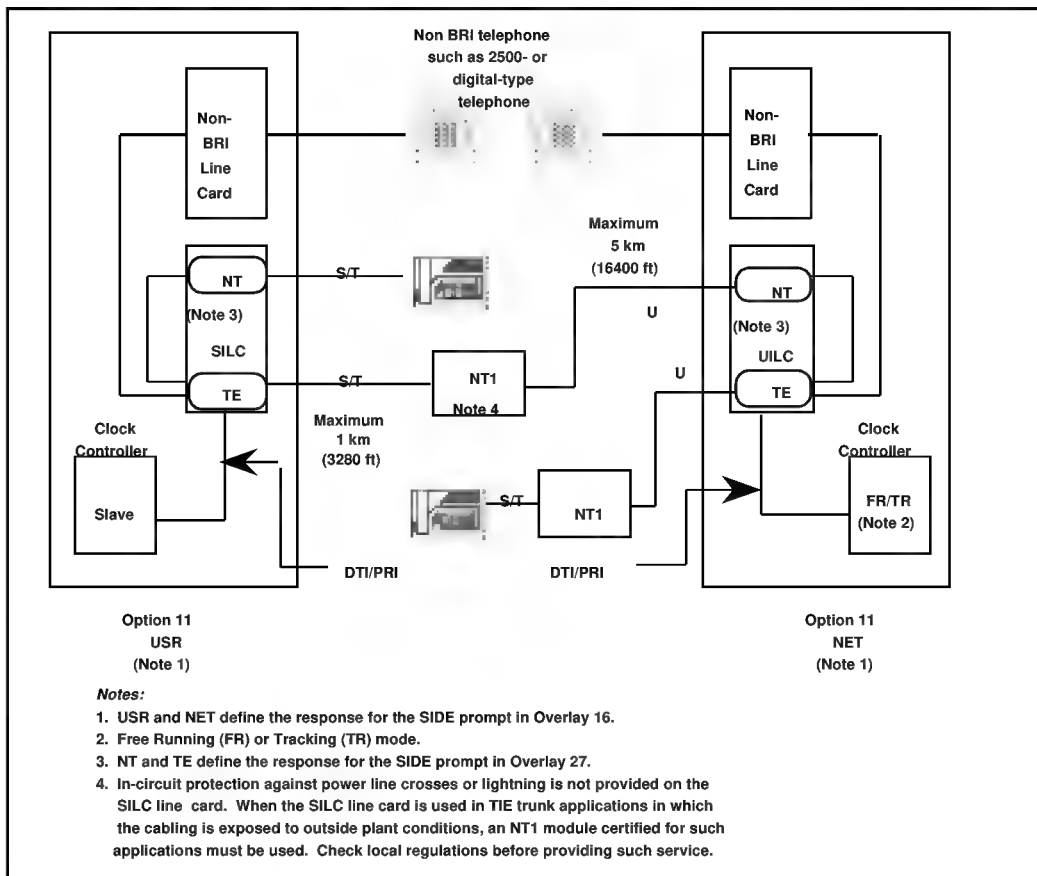
Figure 39
ISDN BRI TIE trunk connectivity — first configuration (not supported in North America)



In the second configuration (refer to Figure 40), an MCDN TIE trunk connection may be achieved by connecting two Meridian 1s through an NT1 device (that supports 2B1Q line encoding). The S/T end is connected to the Meridian 1 Option 11 equipped with an SILC DSL interface in Terminal Equipment (TE) mode; the other end is connected to the other Meridian 1 equipped with a UILC DSL interface in the Network Termination (NT) mode. With this configuration, there is a distance limitation of 6.5 km, without any signal amplification (repeater) device.

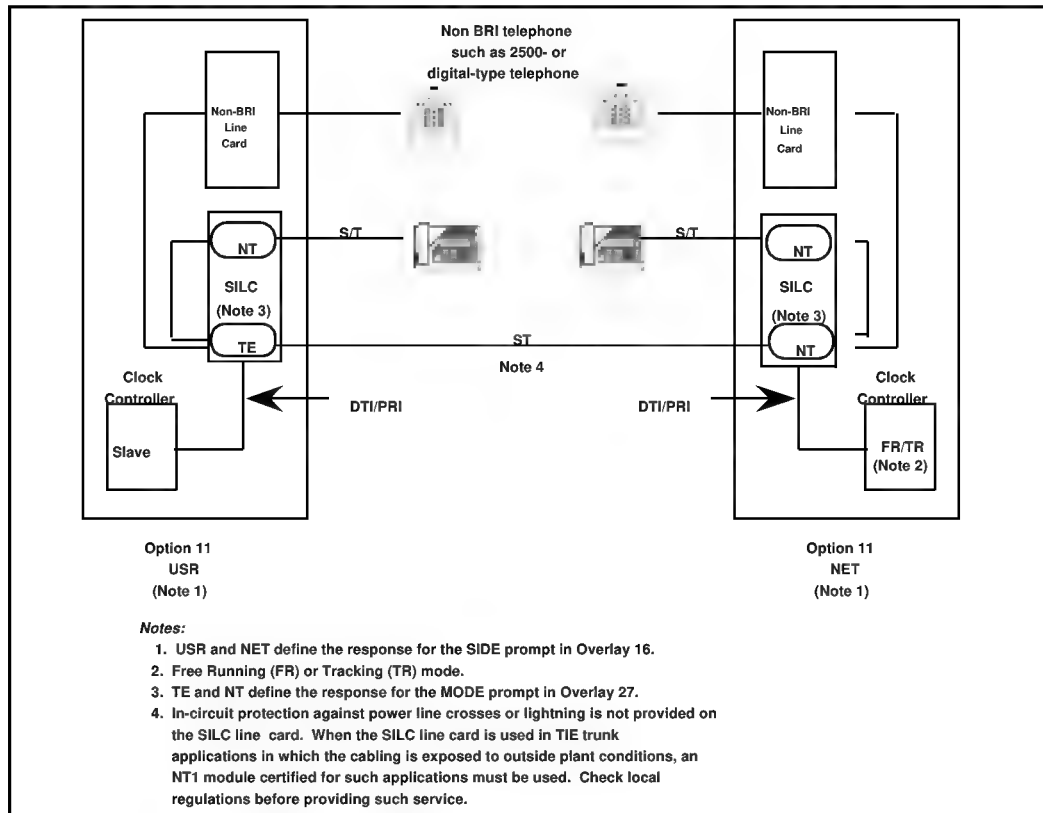
Clock synchronization may be achieved by having the Meridian 1 Option 11, equipped with the SILC, derive clock reference from the BRI TIE trunk connection or from other PRI/DTI/BRI connections if available. The Meridian 1 equipped with the UILC interface may be allowed to operate in free-run mode or derive the clock source from other PRI/DTI/BRI connections if available.

Figure 40
ISDN BRI TIE trunk connectivity — second configuration (supported in North America when both switches are Option 11)



The third configuration (refer to Figure 41), can be used in campus environments, although not recommended because of the lack of protection devices and because of the distance limitation of 1 km, may establish a MCDN TIE trunk by connecting two Meridian 1s by way of a direct line between two back-to-back SILC interfaces. Clock synchronization may be achieved by having one of the Meridian 1s derive clock reference from the BRI TIE trunk connection or from any other PRI/DTI/BRI connections if available. The other Meridian 1 may be allowed to operate in free-run mode or derive the clock source from any other PRI/DTI/BRI connections if available.

Figure 41
ISDN BRI TIE trunk connectivity — third configuration (supported in North America when both switches are Option 11)



ISDN BRI QSIG connectivity

The European Computer Manufacturer's Association (ECMA) has defined an ISDN protocol that specifies the Layer 3 signaling requirement for support of circuit switched call control at the "Q" reference point between Private Telecommunications Network Exchanges (PTNXs) connected within a Private Telecommunications Network (PTN). This protocol has been adopted by the European Telecommunications Standards Institute (ETSI) and the International Standards Institute (ISO). Most of the major European PTNX manufacturers will be supporting ISDN BRI (as well as ISDN PRI) connectivity based on the ISDN QSIG (ETSI and ISO) standard.

QSIG is oriented towards signaling and services that occur between peer-to-peer connectivity, that is, between two PBXs, between two Centrex, or between a PBX and a Centrex; the signaling for services would be exchanged across a "Q" reference point. Figure 42 illustrates an example of QSIG trunk connectivity. For ISDN BRI, the QSIG interface will provide the following capabilities:

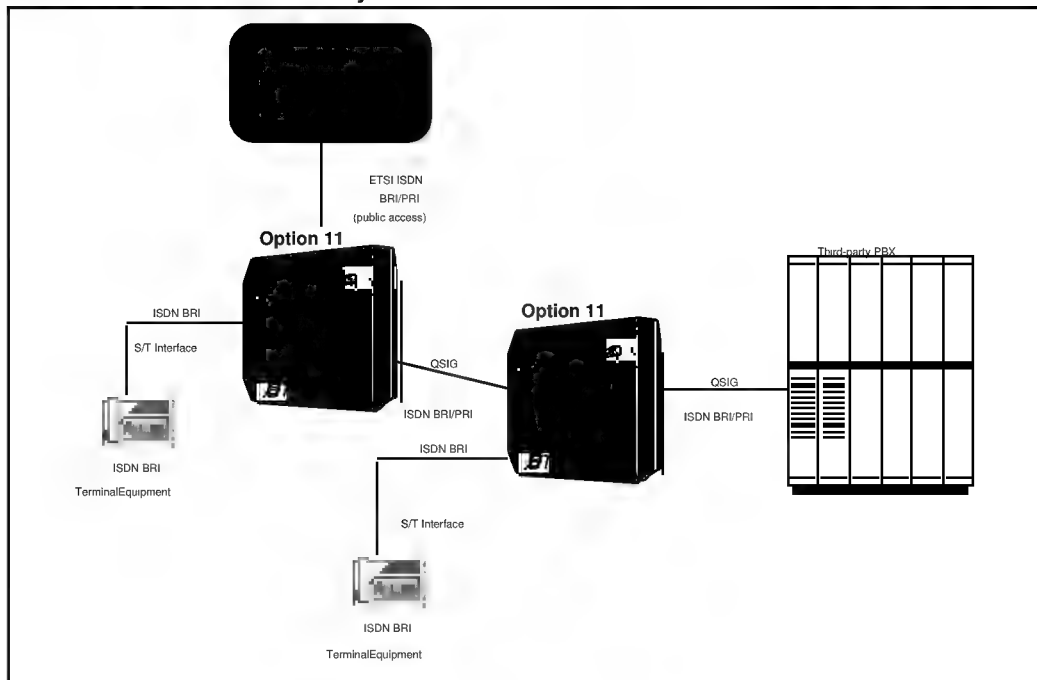
- Compliant Multi-vendor PBX/Centrex Private ISDN interworking (connectivity between the Private ISDN PBXs may be via PRI or ISDN BRI trunks)
- ETSI or ISO version of basic call service
- 64 kbps clear data
- Overlap Sending/Receiving
- Channel Negotiation

Note: in cases where several ISDN BRI trunks (and hence several DSLs) are configured on a route, if Channel Negotiation fails to yield an acceptable channel on any of these DSLs, it is not possible to use another channel on another DSL.

- Calling Line Identification Presentation (CLIP)
- Calling Line Identification Restriction (CLIR)
- Connected Line Identification Presentation (COLP)
- Connected Line Identification Restriction (COLR)
- Flexible Numbering Plan

- Support for Tie trunk call types
- Transit Count information transmitted when ISDN Call Connection Limitation (ICCL) is present (supported for ETSI QSIG only)
- Party Category (partially supported on ETSI QSIG)

Figure 42
ISDN BRI TIE trunk connectivity



Hardware Requirements

Hardware requirements for ISDN BRI trunk applications are as follows:

- **MISP circuit card**
NTBK22 — Multi-Purpose ISDN Signaling Processor
(Required for TIE and Local exchange connectivity)
- **SILC circuit card**
NT6D70AA — -48V North American S/T interface line card
NT6D70BA — -40V International S/T interface line card
(Required for TIE and Local exchange connectivity).
- **UILC circuit card**
NT6D71 — U interface line card
(Required for TIE connectivity only).
- **Clock Controller**
NTAK20AB — Stratum 3 clock controller daughter board
NTAK20BB — Stratum 4 clock controller daughter board
(Require one active clock controller for trunk applications).
- **NT1 (Network Termination)**
(Required for ISDN BRI TIE trunk connectivity SILC to UILC).
NT1 main unit
NT1 Stand-alone power supply

NTBK22 Multi-Purpose ISDN Signaling Processor (MISP) card

The MISP card (NTBK22) is an Option 11 specific card. It performs Data Link (Layer 2) and Network (Layer 3) processing associated with the OSI protocol. The MISP is required for MCDN TIE connectivity and for Numeris and ITR6 Local exchange connectivity.

Each MISP can support 4 line cards (UILC or SILC or any combination of the two). Each line card supports 8 DSLs, therefore each MISP supports 32 DSLs. Since each DSL uses 2 B-channels and one D-channel the MISP supports 32 D-channels.

The MISP supports the downloading of applications from the Option 11 software cartridge. The MISP will be downloaded with the appropriate application code:

- on the first enable
- when Option 11 Software is upgraded
- when MISP Applications are added/changed.

The applications for the MISP are copied from the software cartridge into RAM on the MISP card. Only the new/different applications are downloaded. This information is then copied into the Flash ROM on the MISP for storage. This process requires approximately 10 minutes to complete and is carried out while the MISP pack is operational. Next time the system or MISP card resets, the application(s) is loaded from the MISP Flash ROM provided there are no new/different applications on the software cartridge.

Use the equation below to calculate the number of MISPs required to control SILCs and UILCs.

$$(\text{SILCs} + \text{UILCs}) \div 4 = \text{MISPs}$$

If the result is a fraction, round it off to the next highest number.

NT6D70AA/NT6D70BA S/T Interface Line card (SILC)

The Option 11 SILC cards (NT6D70AA -48V North America, NT6D70BA -40 V International) are the same circuit cards that are used by the rest of the Meridian 1 product line. SILC circuit cards support the OSI physical layer (layer 1) protocol. The SILC is a globally accepted standard interface. The SILC card is required for MCDN TIE connectivity and Local exchange connectivity.

The SILC provides eight S/T 4-wire full duplex polarity sensitive interfaces that can be configured on a per DSL basis. This means that DSL trunk connections may be configured on any of the 8 DSLs for any SILC. Each S/T interface provides two B-channels and one D-channel.

Since only one trunk can be configured per DSL, trunking applications are always non-blocking.

WARNING

Foreign and surge voltage protection

In-circuit protection against power line crosses or lightning is not provided on the SILC line card. When the SILC line card is used in TIE trunk applications in which the cabling is exposed to outside plant conditions, an NT1 module certified for such applications must be used. Check local regulations before providing such service.

NT6D71 U Interface Line Card (UILC)

The UILC interface supports a two-wire point-to-point loop consisting of a twisted pair engineered for 2B1Q line coding on the DSL. The Option 11 UILC card (NT6D71) is the same circuit card that is used by the rest of the Meridian 1 product line. UILC circuit cards support the OSI physical layer (layer 1) protocol. The UILC supports 2B1Q encoding. The UILC card is required for TIE trunk connectivity SILC to UILC as shown in Figure 40.

The UILC provides eight two-wire full duplex (not polarity sensitive) U interfaces. Each U interface provides two B-channels and one D-channel and supports one physical termination. This termination may be to a Network Termination (NT1). Normally this physical termination is to an NT1, (that supports ANSI 2B1Q line encoding) which provides an S/T interface.

The length of a UILC DSL depends on the DSL wire gauge, however, it should not exceed 5 km (16,405 ft).

Clock controller

A clock controller is required for ISDN PRI, DTI or BRI trunk applications. The Option 11 system supports a single active clock controller (CC). This clock controller can support both a primary and a secondary reference clock. These reference clock sources may be derived from either DTI, PRI or BRI spans/DSLs (DSL 0 and/or DSL 1).

Network Termination 1 (NT1)

Stand-alone NT1 unit

The stand-alone NT1 product, which is typically installed at the user's work area, consists of the following units:

- the NT1 unit
- the optional NT1 power supply
- a mounting plate

The stand-alone NT1 unit is a two-part molded housing 210 mm (8.27 in.) by 108 mm (4.25 in.), its depth tapering from about 50 mm (2 in.) to about 32 mm (1.25 in.). On the unit's housing are four LED status indicators and three connectors. The bottom of the unit holds four rubber feet for desk-mounting the unit, and four slides that are used to attach the unit to the mounting plate. The unit contains the single NT1 circuit pack assembly.

NT1 power supply unit

The stand-alone NT1 is powered by one of two methods:

- 1** The NT1 power supply unit which converts 110 V ac input to provide -48 V dc for the NT1, and optionally for the TEs on the S/T bus.
- 2** A customer-provided -48 V dc supply rated a 2 W minimum for NT1 powering. Additional power may be provided to power the TEs on the S/T bus.

The NT1 power supply unit is virtually identical to the NT1 unit. It is a two-part molded housing of 210 mm (8.27 in.) by 108 mm (4.25 in.), its depth tapering from about 50 mm (2 in.) to about 32 mm (1.25 in.). On the units housing are three connectors, one of which is a captive power cord. The bottom of the unit holds four rubber feet for desk-mounting the unit, and four slides that are used to attach the unit to the mounting plate. The unit contains a single circuit pack assembly.

Cables

Two cables are provided with the NT1 power supply unit:

- a 178 mm (7 in.) cable (A0346581) for connecting between the power supply and the NT1 unit.
- a captive power cord for connection the an ac power outlet.

Cables

There are no ISDN BRI specific cables required.

Installing BRI hardware

Installation procedures

The following lists the procedures that should be followed in the order shown to install ISDN BRI equipment for a trunking configuration. The Option 11 should already be installed and operating before performing these procedures.

- 1 Selecting the card slots.
- 2 Installing clock controller on MISP if required.
- 3 Installing the MISPs.
- 4 Installing the SILCs and/or UILCs.
- 5 Connecting Option 11 cables to the cross-connect terminal.
- 6 Cross-connecting DSLs at the cross-connect terminal.

Selecting the card slots

Refer to Table 17 for ISDN BRI circuit card assignments in the main and expansion Option 11 cabinets.

Note: Refer to the Option 11C Installation guide (553-3011-210) for instructions about adding a cabinet, if one is required.

Identify the card slots in the Option 11 cabinets that will house ISDN BRI cards. Refer to the *Card slot allocation plan* for the cabinets and identify vacant slots. (Refer to the *General installation and planning guide* — 553-3011-200, for information about the *Card slot allocation plan*.) The following rules apply when selecting the card slots:

- MISPs are inserted in the main cabinet in any available slots from 1 through 9.
- One MISP supports a set of four SILCs or UILCs, or a combination of both SILCs and UILCs.
- SILCs and UILCs can be installed in the main and expansion cabinets (slots 1 through 30)

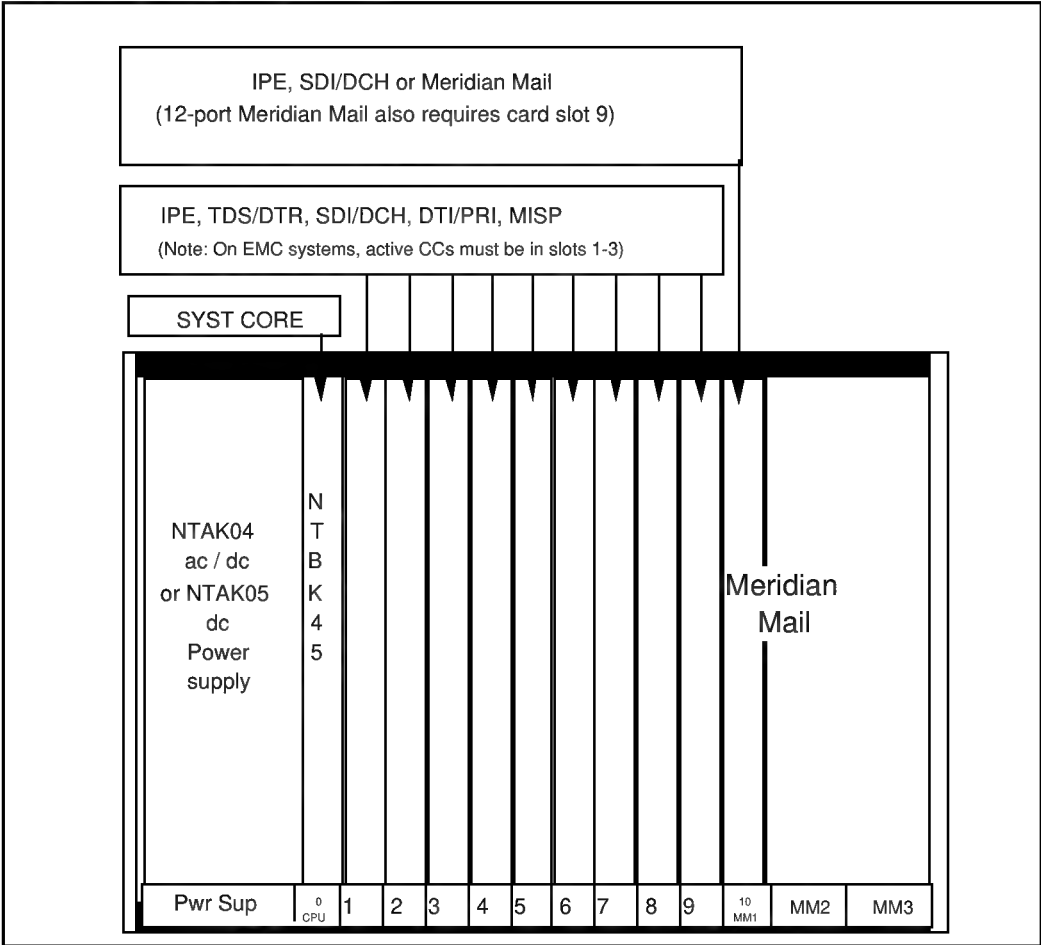
Note: A SILC serving as a clock source in trunk access applications must reside in the main cabinet (any of slots 1 through 9).

Table 17
ISDN BRI card location

ISDN BRI Circuit Card	Main Cabinet	Expansion Cabinet
MISP	Slots 1 through 9	—
SILC not used as a clock reference	Slots 1 through 9	Slots 11 through 30
SILC used as a clock reference	Slots 1 through 9	—
UILC	Slots 1 through 9	Slots 11 through 30

Figures 43 and 44 and show typical configurations for the Option 11 and the card slots into which ISDN BRI cards can be inserted.

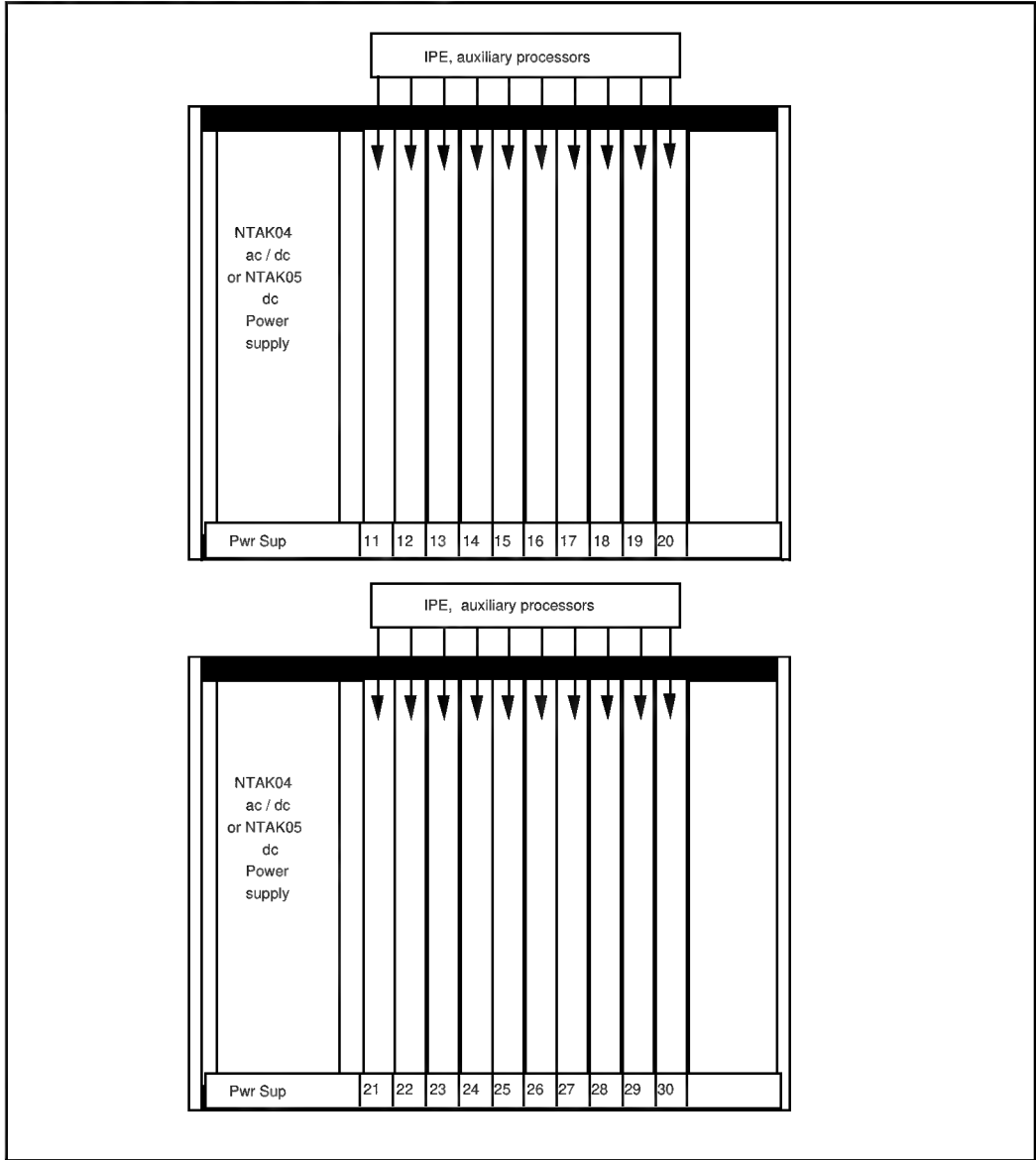
Figure 43
Shelf assignments, main cabinet



Note: The SILC circuit cards used as a clock reference for trunks may be placed in slots 1 to 9. MISP circuit cards must reside in the main cabinet, slots 1 to 9. The Meridian Mail option, if it is equipped, requires slot 10 in the main cabinet..

An optional clock controller daughter board (NTAK20AB—Stratum 3 or NTAK20BB—Stratum 4) may reside on the MISP circuit card.

Figure 44
Shelf assignments, expansion cabinet



Installing the clock controller on the MISP

The line cards associated with BRI DSLs used as references must be installed in the Main Cabinet.

Clock controller installation guidelines

- If the primary reference clock source is to come from a PRI or DTI, then the clock controller (CC) must reside as a daughter board on the DTI/PRI card.
- If the primary reference clock is to be derived from a BRI DSL, then the CC daughter board must reside on the MISP associated with that line card, and **DSL0** of that line card is used to generate the reference clock.
- If a DTI/PRI is to be used as a secondary clock source reference, the CC daughter board can reside on either a DTI, PRI or MISP. The clock is extracted from the target DTI/PRI span and routed to the CC over the back plane.
- If a BRI DSL is to be used as a secondary clock source reference, the CC daughter board can reside on either a DTI/PRI or MISP. The clock is extracted from **DSL1** of the source line card and routed over the backplane to the CC.

Installing the MISPs

The following procedure describes how to install MISPs into the Option 11 main cabinet. Refer to the *Card slot allocation plan* for the card slots assigned to MISP.

1 Remove the cover from the main cabinet.

CAUTION

The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

2 Remove the MISP from its shipping package and hold it by its card locking devices.

Install a clock controller if one is required.

Note: Observe the LED on the faceplate of the MISP while performing the next step.

- 3 Insert the MISP into the selected card slot and lock it in place. The LED should light, flash three times then remain lit to indicate that the MISP is operating correctly but is not configured and enabled.**

—or—

The LED should light, flash three times then extinguish to indicate that the MISP is operating correctly and is configured and enabled.

Any other LED indication suggests a defective MISP circuit card.

Note: The Flash ROM can become corrupted if loss of power occurs during programming of the Flash ROM. If this occurs, the Flash ROM will automatically be re-initialized when the MISP is installed (powered up). This operation will delay the completion of the self-test, and it will take five minutes for the LED to flash three times.

- 4 Repeat the steps of this procedure for each MISP being installed.**

Installing SILCs and UILCs

The following procedure describes how to install SILCs and UILCs into the Option 11 cabinets. Refer to the *Card slot allocation plan* for the card slot assignments.

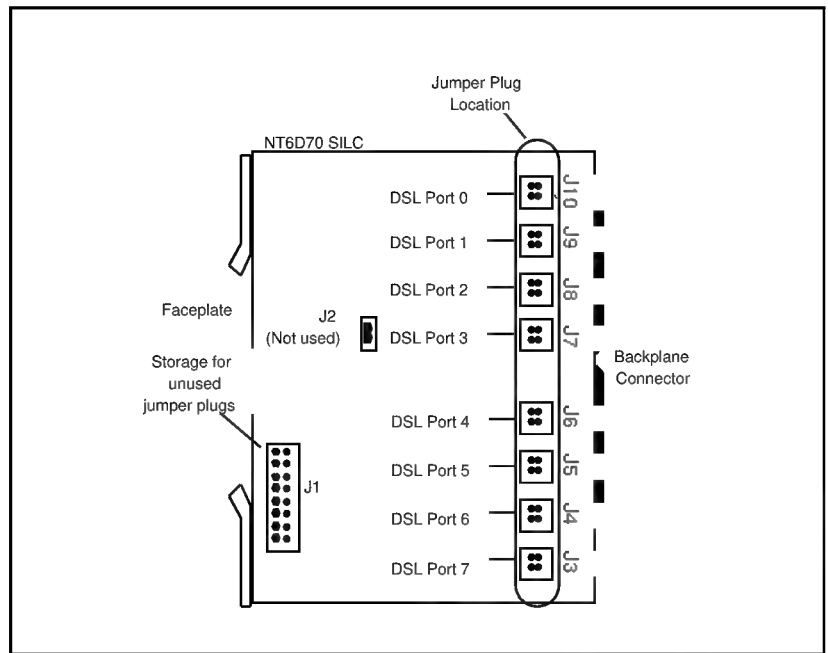
1 Remove the cover from the assigned cabinet.

CAUTION

The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

2 Remove the SILC or UILC from its shipping package. Remove any option jumpers on the SILC (two jumpers per DSL) from the pin headers. Each port is equipped with its own set of option jumper plugs to allow individual configurations for each DSL.

No jumpers are required for trunking applications (when MODE = TE in LD 27). Unused jumper plugs should be stored for future use on the SILC by placing the plug on location J1. The location of the jumpers is shown in the following illustration.



Note: Observe the LED on the faceplate of the SILC or UILC while performing the next step.

3 Insert the SILC or UILC into the selected card slot and lock it in place.

The LED should light, flash three times, then remain lit to indicate that the card is operating correctly but is not configured.

—or—

The LED should light, flash three times, then extinguish to indicate that the card is operating correctly and is configured.

Any other LED indication suggests a defective circuit card.

4 Repeat the steps in this procedure for each SILC or UILC being installed.

Connecting Option 11 cables to the cross-connect terminal

The following procedure describes how to connect the cables from the Option 11 cabinet to the cross-connect terminal.

Each card slot equipped with an SILC or UILC requires one NE-A25B 25-pair connector cable. The cables are connected to connectors located at the bottom of the cabinet and are routed through the openings in the lower part of the cabinet. Each connector is assigned to its corresponding card slot (example: connector J8 is assigned to card slot 8).

Connecting the cables

- 1 Remove the connector retaining bar from the connector panel in the lower part of each cabinet. See Figures 45, 46, and Figures 47**
- 2 Connect an NE-A25B cable to each of the connectors associated with a card slot containing an SILC or UILC circuit card. See Figures 45, 46, and Figures 47.**

Make sure to tag both ends of each cable with the cabinet and connector numbers.

- 3 Route the cables down through the opening at the bottom of the cabinet.**
- 4 Replace the retaining bar when you have connected all the cables to the cabinet.**
- 5 Terminate the 25-pair cables installed at the cross-connect terminal.**
- 6 Label the cross-connect terminal for each connector.**

The Figures 48 and 49 show the label used with the BIX cross connecting system.

Figure 45
Cable connectors in the main cabinet

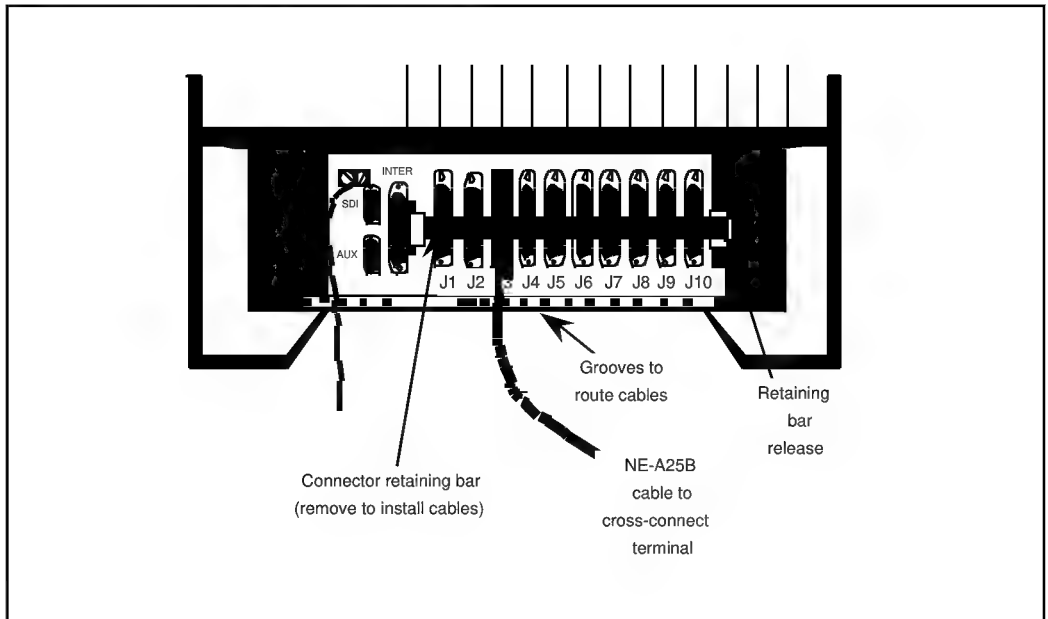


Figure 46
Cable connectors in the first expansion cabinet

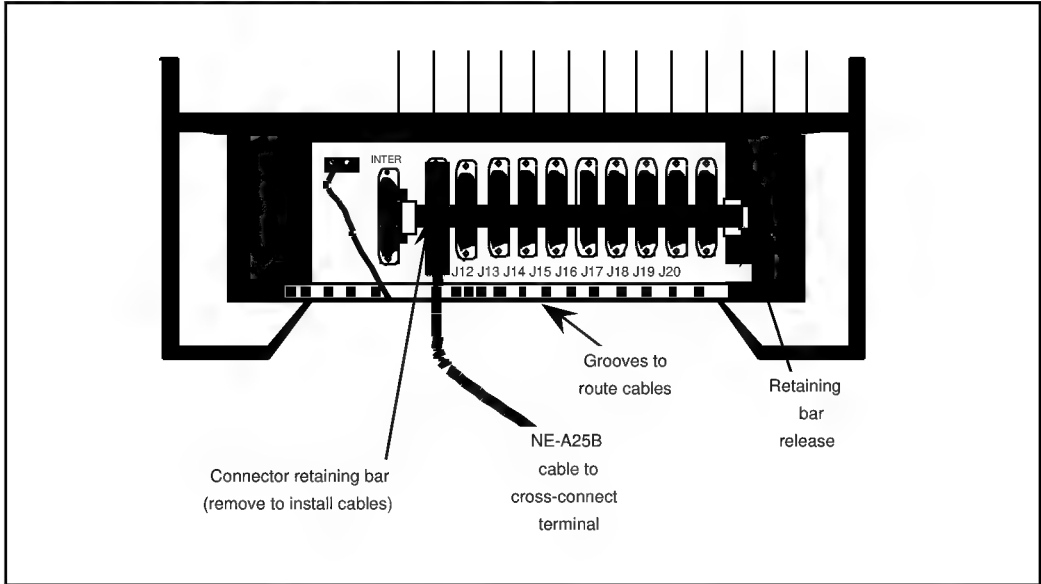


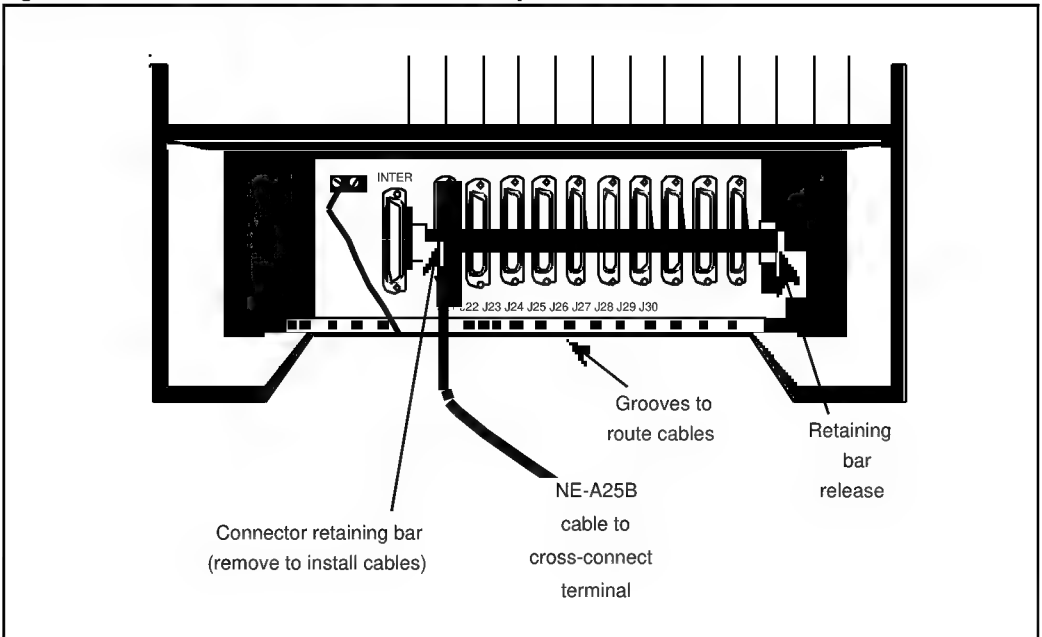
Figure 47- Cable connectors in the second expansion cabinet

Figure 48
SILC port designation label at the cross-connect terminal

Tx-Tx+Rx+ Rx-0	Tx-Tx+Rx+ Rx-1	Tx-Tx+Rx+ Rx-2	Tx-Tx+Rx+ Rx-3	Tx-Tx+Rx+ Rx-4	Tx-Tx+Rx+ Rx-5	Tx-Tx+Rx+ Rx-6	7 0
-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-----

Note: The pair designated Tx- Tx+ is the transmit pair. The pair designated Rx- Rx+ is the receive pair. An SILC port supplies 2 W of power at -48 V (-40 V for Europe), simplex over the transmit and receive pairs. The transmit pair is negative with respect to the receive pair.

Figure 49
UILC port designation label at the cross-connect terminal

T R 0	T R 1	T R 2	T R 3	T R 4	T R 5	T R 6	T R 7	0
----------	----------	----------	----------	----------	----------	----------	----------	---

Note: The cable pair designated T R is a 2B1Q full duplex U interface.

Cross-connecting DSLs at the cross-connect terminal

Each SILC provides eight four-wire full duplex ports. These ports are connected to the trunk wiring facilities (typically cabling or wiring from outside the building) to form DSLs. The DSLs are polarity sensitive and signal polarity must be maintained along each loop as shown in Figure 50.

Each UILC provides eight two-wire full duplex ports. These ports are connected to twisted pair trunk wiring facilities to form DSLs as shown in Figure 51. The DSLs are not polarity sensitive and it is not necessary to maintain signal polarity along each loop.

To cross-connect SILC and/or UILC ports to the trunk wiring facilities:

- 1 Identify the card type (SILC or UILC) at the cross-connect terminal.
- 2 Identify transmit and receive pins on the top of the labeled distribution strip for the card type you are connecting.

Refer to Table 18 to identify ports and their pin numbers for a SILC or UILC.

- 3 Identify the trunk wiring facilities connected at the cross-connect terminal.**
- 4 Cross-connect the pins from the SILC or UILC to the trunk wiring facilities.**
- 5 Repeat this procedure for each DSL.**

Table 18
SILC and UILC port assignments connectors at cross-connect terminal

SILC Port Signals	UILC Port Signals	Connector Pin Number and Wire Color Code		Card Ports
0 Tx- 0 Tx+ 0 Rx- 0 Rx+	0 T 0 R	26 1 27 2	W-BL BL-W W-O O-W	Port 0
1 Tx- 1 Tx+ 1 Rx- 1 Rx+	1 T 1 R	28 3 29 4	W-G G-W W-BR BR-W	Port 1
2 Tx- 2 Tx+ 2 Rx- 2 Rx+	2 T 2 R	30 5 31 6	W-S S-W R-BL BL-R	Port 2
3 Tx- 3 Tx+ 3 Rx- 3 Rx+	3 T 3 R	32 7 33 8	R-O O-R R-G G-R	Port 3
4 Tx- 4 Tx+ 4 Rx- 4 Rx+	4 T 4 R	34 9 35 10	R-BR BR-R R-S S-R	Port 4
5 Tx- 5 Tx+ 5 Rx- 5 Rx+	5 T 5 R	36 11 37 12	BK-BL BL-BK BK-O O-BK	Port 5
6 Tx- 6 Tx+ 6 Rx- 6 Rx+	6 T 6 R	38 13 39 14	BK-G G-BK BK-BR BR-BK	Port 6
7 Tx- 7 Tx+ 7 Rx- 7 Rx+	7 T 7 R	40 15 41 16	BK-S S-BK Y-BL BL-Y	Port 7
Note: The cable pair designated Tx- Tx+ is the transmit pair and the pair designated Rx+ Rx- is the receive pair of the S/T interface. The cable pair designated T R is the Tip and Ring of the 2B1Q full duplex U interface.				

For the Option 11 DSL in TE mode, the Tx and Rx pairs must be reversed as shown in Figure 52. Maintain the same polarity on the Tip and Ring pins as for line application. Rewire the selected Tx and Rx pairs to exchange their Tx pairs with Rx pair position. This procedure is required since SILC cards are designed for applications in the NT mode.

Figure 50
Cross-connecting an SILC port

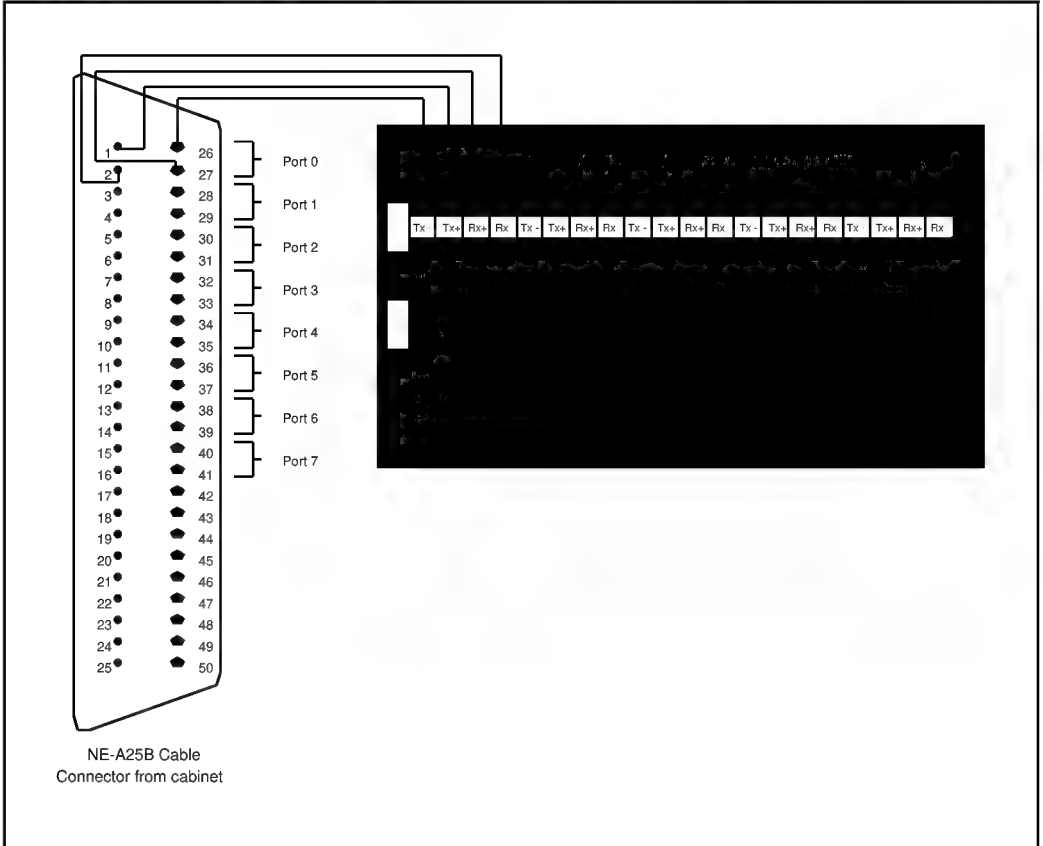


Figure 51
Cross-connecting a UILC port

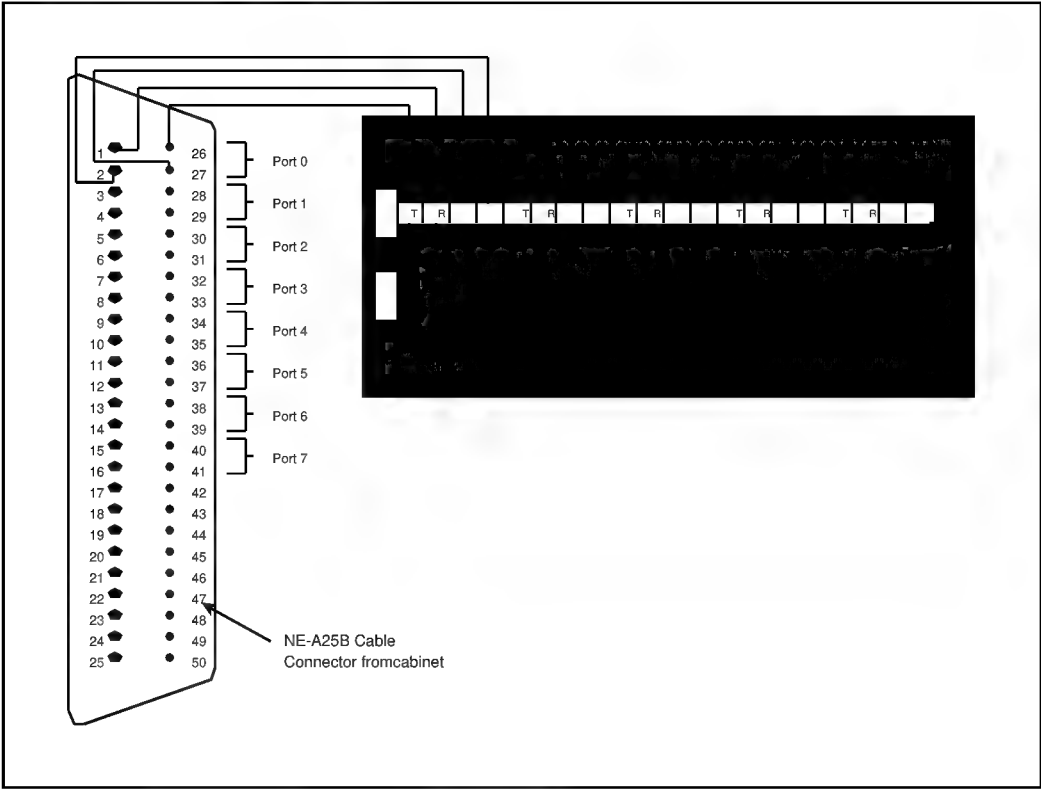
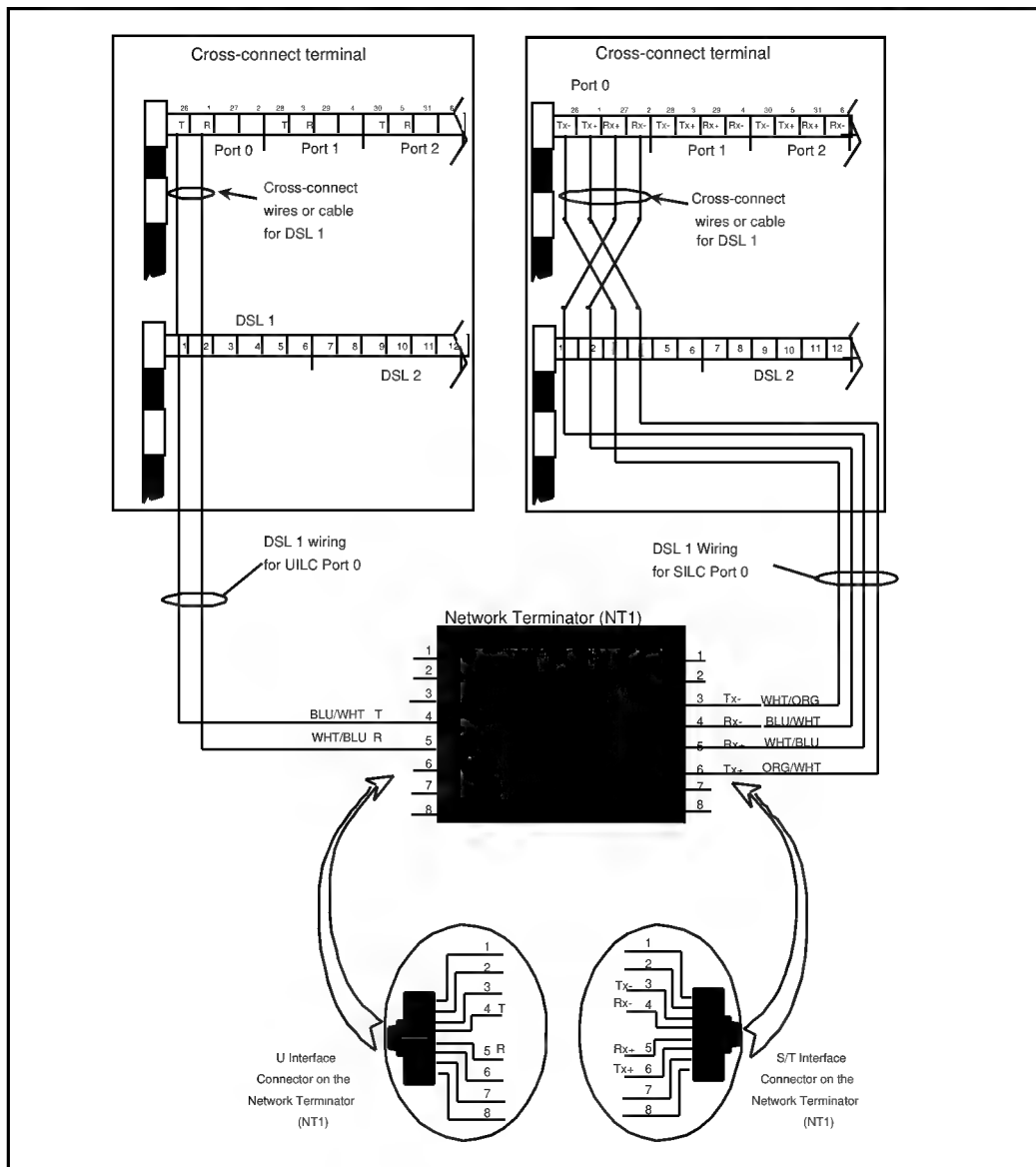


Figure 52

Connecting the ISDN network terminator to the U interface and to the S/T interface (in TE mode)



ISDN BRI trunk software programming

Various items must be configured in software to implement the ISDN BRI trunk feature.

You must configure the following components in the order listed below to configure ISDN BRI trunks:

- 1 Configure ISDN customer, using overlay 15.**
- 2 Configure trunk pad tables, using overlay 73 (Optional step).**

This step is optional. If no pad values are configured, the default values are used.
- 3 Configure the LAPD Protocol Group, using overlay 27.**
- 4 Configure the ISDN BRI trunk route data block, using overlay 16.**
- 5 Configure the MISP using overlay 27.**
- 6 Configure the SILC and/or UILC card using overlay 27.**
- 7 Configure trunk DSL, using overlay 27.**
- 8 If the SILC clock is configured, enter the ISDN BRI trunk clock reference in overlay 73.**

Configuring customer data

Define an ISDN customer using the Customer Data Block (overlay 15).

LD 15 — Prompt formats for defining an ISDN customer

Prompt	Response	Comment
REQ	NEW/CHG	NEW for new customer or CHG for an existing customer
TYPE	CDB NET_DATA	Customer data block. Networking Data (Release 21 gate opener).
CUST	0-31	Customer number.
...	...	
...	...	
ISDN	YES	YES customer is equipped with ISDN
...	...	
...	...	
...	...	

Configure trunk pad tables, using overlay 73 (Optional step)

Define the pad settings if required. This step is optional because if no pad values are configured the default values are used. The digital pad provides gain or attenuation values to condition the level of the digitized transmission signal according to the network loss plan. This determines transmission levels for the B-channel circuit-switched voice calls.

LD 73 —Configuring trunk pad tables

Prompt	Response	Comment
REQ	NEW	New settings
TYPE	BRIT	Table type
FEAT	PAD	Set PAD values used for BRIT
PDCA	1-16	PAD Category table. If one channel is using the specified table, then the command is aborted. Table 1 cannot be modified or deleted.
TNLS	YES (NO)	TN List. This is for the print command only. A YES response means that a list of the trunk TNs using the requested PAD category tables will be printed after the table.
PDCA	1-16	PAD Category table. If one channel is using the specified table, then the command is aborted. Table 1 cannot be modified or deleted.
DFLT	(1)-16	For NEW only. The table is used for default values.
— continued —		

LD 73 —Configuring pad tables (continued)

Prompt	Response	Comment
The following prompts define the pad levels. The receiving pad code is <i>r</i> and the transmission pad code is <i>t</i> . These entries have the range 0-26. The pad values (in decibels) relating to these codes are shown after this table.		
ONP	<i>r t</i>	On-premises extension
DSET	<i>r t</i>	Meridian Digital Set
OPX	<i>r t</i>	Off-premises extension
DTT	<i>r t</i>	Digital TIE trunks
SDTT	<i>r t</i>	digital Satellite TIE trunks
NTC	<i>r t</i>	Nontransmission compensated
TRC	<i>r t</i>	Transmission compensated
DCO	<i>r t</i>	digital COT, FEX, WAT, and DID trunks
VNL	<i>r t</i>	VIA NET LOSS
DTO	<i>r t</i>	2Mb DTI digital TOLL office trunks
ACO	<i>r t</i>	Analog local exchange or WATS trunks
AFX	<i>r t</i>	Analog FEX trunks
ADD	<i>r t</i>	Analog DID trunks
SATT	<i>r t</i>	Analog satellite TIE trunks
ATO	<i>r t</i>	Analog TOLL office trunks
PRI2	<i>r t</i>	2Mb PRI trunk (prompted only if the 1.5/2Mb Gateway feature is equipped and TYPE=2Mb PRI) Author's Note—p7/dave/gateway
XUT	<i>r t</i>	Analog local exchange trunk (prompted only if the 1.5/2Mb Gateway feature is equipped and TYPE=PRI2) Author's Note—p7/dave/gateway
XEM	<i>r t</i>	Analog TIE trunk (prompted only if the 1.5/2Mb Gateway feature is equipped and TYPE=PRI2) Author's Note—p7/dave/gateway
BRIL	<i>r t</i>	Basic Rate Interface Lines
BRIT	<i>r t</i>	Basic Rate Interface Trunk
....		

The following table shows pads codes and their values. Positive dB represents loss and negative dB represents gain.

Pad codes and values

code	0	1	2	3	4	5	6	7
value (dB)	0.0	+1.0	+2.0	+3.0	+4.0	+5.0	+6.0	+7.0
code	8	9	10	11	12	13	14	15
value (dB)	+8.0	+9.0	+10.0	+11.0	+12.0	+13.0	+14.0	-1
code	16	17	18	19	20	21	22	23
value (dB)	-2	-3	-4	-5	-6	-7	-8	-9
code	24	25	26					
value (dB)	-10	idle	+0.6					

Configuring the LAPD protocol group

A protocol group is added by using LD 27 and specifying its protocol group number. You also change its LAPD parameters or accept the default values. LAPD is a transmission protocol that specifies the transmission timers, the maximum number of retransmissions, the size of the data frame, and the number of negative acknowledgments before the system issues an alarm.

LD 27 — Configuring the LAPD protocol group

Prompt	Response	Comment
REQ	NEW	Add an ISDN protocol group
TYPE	LAPD	Protocol group
PGPN	0-15,<cr>	Protocol group number The values for this prompt are: 0-15=Adds a specified protocol group <cr>=Stops this prompt from being displayed again
LAPD	YES,(NO)	LAPD parameters The values for this prompt are: YES=Define or modify the LAPD parameters NO=Does not prompt the LAPD parameters and assigns the default values shown in () to these parameters.
T200	(2)-40	Retransmission timer specifies the time delay before the system retransmits the information. Delay is in increments of 0.5 seconds.
T203	4-(20)-80	Maximum time between transmission frames Delay is in increments of 0.5 seconds.
N200	1-(3)-8	Maximum number of retransmissions of unsuccessfully transmitted information.
N201	4-(260)	Maximum number of contiguous octets or bytes of information.
K	(1)-32	Maximum number of outstanding negative acknowledgment (NAKs) allowed before alarming the system.
N2X4	0-(10)-20	For 1TR6 connectivity. Number of Status Inquiries when the remote station is in peer busy state.

Configuring ISDN BRI trunk route data block parameters

Route data block parameters for the ISDN BRI Trunk access capability are configured using LD 16.

LD 16 — Configuring ISDN BRI trunk route data block parameters

Prompt	Response	Comment
REQ	NEW	Add ISDN BRI protocol group settings
TYPE	RDB	Route data block.
CUST	0-31	Customer number.
DMOD	<cr>	Default model number for this route
ROUT	0-511	Route number.
TKTP	TIE/COT/DID	Trunk route type.
RCLS	<cr>	Class marked route
DTRK	YES	Digital Trunk Route
BRIP	NO	BRI packet handler route
DGTP	BRI	Digital trunk type. Note: BRI cannot be entered for DGTP if an ISDN BRI Route Packet Handler has been configured on the route.
NASA	YES/(NO)	(International only) Network Attendant Service Interface.
MBGA	YES/(NO)	Multi Business Group interface on the D Channel.

Prompt	Response	Comment
IFC	(SL1) EURO D100 D250 ESS4 ESS5 S100 SS12 AXEA AXES D70 ISIG ISGF ESIG ESGF 1TR6 NUME TCNZ APAC	DCH interface type. SL1 = Meridian SL-1 EURO = EuroISDN D100 = Meridian DMS-100 D250 = Meridian DMS-250 ESS4 = AT&T ESS#4 ESS5 = AT&T ESS#5 S100 = Meridian SL-100 SS12 = SYS-12 for Norway AXE = Ericsson AXE-10 for Australia AXS = Ericsson AXE-10 for Sweden D70 = Japan D70 ISIG = ISO QSIG ISIG with GF platform ESIG = ETSI QSIG ESIG with GF platform 1TR6 = Germany 1TR6 NUME = France Numeris TCNZ = Telecom New Zealand (NEAX-61) interface. Asia Pacific interface. Note: IFC cannot be changed without disabling all ISDN BRI trunk members associated with this route.
CNTY	AUS DEN (ETSI) FIN GER ITA NOR POR SWE EIR DUT SWI BEL ESP UK FRA CIS	Enter the country pertaining to the EuroISDN interface. Austria Denmark ETS 300-102 basic protocol Finland Germany Italy Norway Portugal Sweden Ireland Holland Switzerland Belgium Spain United Kingdom France Commonwealth of Independent States (Russia and the Ukraine).
- continued on next page -		

Prompt	Response	Comment
CNTY (cnt'd.)		Enter the country pertaining to the Asia Pacific interface.
	AUST	Australian interface.
	CHNA	China interface.
	HKNG	Hong Kong interface.
	INDO	Indonesia interface.
	JAPN	Japan interface.
	MSIA	Malaysia interface.
	SING	Singapore interface.
	TCNZ	New Zealand interface
	THAI	Thailand interface.
...		
CDR	(NO), YES	YES = CDR on route (NO) = No CDR on trunk route If answer supervision is defined for the trunk, CDR records will only be generated on call completion.
CLID	OPT4	OPT4 is the CLID option for the Asia Pacific interface.
PROG	NCHG	Progress signal. No Change. This is the default for all Asia Pacific interfaces except Japan and Australia.
	MALE	Alert message. This is the default for the Japan interface.
	MCON	Connect message. This is the default for the Australia interface.
...		
CPFXS	NO	Customer-defined Prefixes option. If CPFXS = NO, when constructing the Calling or Connected Line Identification, the prefixes are retrieved from the Route Data Block via the HNTN and HLCL prompts which follow. Enter NO for APAC.
	(YES)	If CPFXS = YES, when constructing the Calling or Connected Line Identification, the prefixes are retrieved from the Customer Data Block via the HNTN and HLCL prompts in LD 15, as is currently done. This is the default response.

Prompt	Response	Comment
HNTN	0-9999	This prompt applies to APAC only if CPFXS = NO. Home National Number. This number is similar to the PFX1 number prompted in LD 15. It is added to this overlay so that this prefix can be configured on a route basis. As is the case with PFX1, the HNTN prefix can be from one-to-four digits long.
HLCL	0-9999	This prompt is applies to APAC only if CPFXS = NO. Home Location Number. This number is similar to PFX2 number prompted in LD 15. It is added to this overlay so that this prefix can be configured on a route basis. As is the case with PFX2, the HLCL prefix can be from one-to-four digits long.
...		
OTL	(NO), YES	YES = CDR on outgoing toll calls (NO) = No CDR on toutgoing toll calls
...		
OAN	(NO), YES	YES = CDR on all answered outgoing toll calls (NO) = No CDR on all answered outgoing toll calls
MR		Allow Advice of Charge for EuroISDN, Japan D70, or Australia (for Asia Pacific interface).
	DURC ENDC STAC	DURC = Activation of the AOC-D subservice ENDC = Activation of the AOC-E subservice STAC = Activation of the AOC-S subservice.
RUCS	0-3199	Route Unit Cost. This prompt does not appear for Denmark or Sweden.
RURC	0-3199 (0)-3	Route unit reference cost. Note that the formula for the route unit reference cost is: $X*10(-Y)$. where $X = 0 - 9999$, $Y = 0 - 3$ The default value of X is identical to the previously entered RUCS value. This prompt does not appear for Denmark or Sweden.
RUCF	0 - (1) - 9999 (0) - 3	Route Unit Conversion Factor. This prompt does not appear for Denmark or Sweden.
...		

Prompt	Response	Comment
MCTS	YES	Enable Malicious Call Trace signaling for AUST or TCNZ.
- MCTM	(0)-30	Malicious Call Trace request timer is defined in seconds. This is the disconnection delay which is used. It overrides T306 for calls to/from Malicious Call Trace capable sets (Australia only).
MTND	(NO), YES	Malicious Call Trace disconnect delay for tandem calls (Australia only).
...		
SIDE	NET/USR	Meridian SL-1 node type, prompted only if IFC = SL1. If IFC is not SL-1, it defaults to USR. If IFC is SL1, it defaults to NET. Cannot be changed from NET to USR if NT mode members exist on route; NT mode DSLs must be on NET side. Refer to the configuration Figures 38, 39, 40, 41 to determine the NET or USR side for the configuration being implemented.
CNEG	YES/(NO)	Channel Negotiation Option, prompted only for local exchange connectivity, that is, if IFC = 1TR6 or NUME.
OVLRL	YES/(NO)	Overlap Receiving Allow/Disallow. Not prompted if IFC=NUME (will default to NO)
DIDD	(0)-15	Number of leading digits that are ignored for DID calls during Overlap Receiving.
OVLRS	YES/(NO)	Overlap Sending Allow/Disallow. Not prompted if IFC=NUME (will default to NO)
OVLTL	(0)-8	Inter-INFO timer during Overlap Sending.
PGPN	0-15	Protocol Group, as defined previously in overlay 27. Note: PGPN cannot be changed without disabling all BRI trunk members associated with this route.

Prompt	Response	Comment
RCAP		Remote D-Channel capabilities. Enter X followed by the option to remove the configured capability. This prompt is repeated until <cr> is entered.
	NCT	NCT = Network Call Trace
	RVQ,	RVQ = Remote Virtual Queueing
	ND1	ND1 = Network Name Display 1
	ND2	ND2 = Network Name Display 2
	NAS	NAS = Network Attendant Service
	BRI	BRI = allows ISDN line/trunk interworking)
	COLP	COLP = Connected Line ID supplementary service (for APAC Indonesia only).
	DV11	These are QSIG SS Call Diversion Notification remote capability responses, used to configure sending of QSIG Diversion Notification Information, treatment of Rerouting request and coding of operations. If coded as Object Identifier, the remote capability ends with 'O', whereas for Integer Value, the remote capability ends with 'I'. Only one remote capability is allowed.
	DV10	
	DV2I	
	DV2O	
	DV3I	
	DV3O	
		Refer to Table 19, "Remote Capability Meanings for ISDN BRI routes," on page 282 for more information.
...		

Table 19
Remote Capability Meanings for ISDN BRI routes

Remote capability	Meaning for Operation Coding	Meaning for Notification Informations	Meaning for Rerouting request
None of the following remote capabilities.	Not applicable (nothing sent)	Not <u>sent</u>	Not processed when <u>received</u>
DV1O	<u>Sent</u> coded as Object Identifier	<u>Sent</u>	Not processed when <u>received</u>
DV1I	<u>Sent</u> coded as Integer Value		
DV2O	<u>Sent</u> coded as Object Identifier	Not <u>Sent</u>	Processed when <u>received</u>
DV2I	<u>Sent</u> coded as Integer Value		
DV3O	<u>Sent</u> coded as Object Identifier	<u>Sent</u>	Processed when <u>received</u>
DV3I	<u>Sent</u> coded as Integer Value		

When using Table 19 consider the following:

- Only nodes subject to be Originating, Served, Diverted or Rerouting nodes with respect to QSIG Call Diversion Notification need to have diversion remote capability configured. Transmit nodes pass the information transparently.
- When choosing the Operation Coding Choice, the interface type should be considered. When the QSIG interface used is ISO (IFC ISGF), operations are mostly coded with Integer Values.

Only one remote capability allows the QSIG Diversion configuration on an ISDN BRI route. This remote capability gathers the three following possibilities for the route:

- coding of operations sent to the remote switch, which can be coded as either as Object Identifier or as Integer Value. If coded as Object Identifier, the remote capability ends with as 'O', whereas for Integer Value, the remote capability ends with as 'I'. This means that remote capabilities explained below in 2 and 3 are defined twice.
- sending of QSIG Diversion Notification Information to the remote switch: these informations are sent only if the remote capability is of first or third type, i.e. DV1x or DV3x, where the x is either 'I' or 'O' as explained in 1.
- treatment of Rerouting requests received from the remote switch: a rerouting request is only processed if the remote capability is of second or third type, i.e. DV2x or DV3x, where x is either 'I' or 'O' as explained above.

Configuring an MISP

An MISP is added to the system by specifying its card slot number using LD 27.

LD 27 — Configuring an MISP

Prompt	Response	Comment
REQ	NEW	Add an ISDN BRI MISP
TYPE	MISP	MISP
LOOP	1-9	MISP card slot number
APPL		Application type for the MISP.
	BRIT,BRIE,	Enter BRIT for ISDN BRI trunking.
	XBRIE	Enter BRIE for BRI trunking for IFC = EuroISDN, QSIG, or APAC.
		APPL is prompted until <cr> is entered.
DSPD	YES, (NO)	YES = D-channel Packet Switched Data
		(NO) = No D-channel Packet Switched Data.
		Use the default value (NO).
		Subsequent prompts will be skipped.

Configuring an SILC or UILC

A new SILC or UILC is added by specifying its location, card type, and the MISP card slot that this card uses to transmit and receive signals.

Note: You have an option of skipping this step and specifying the card type when you configure the DSL. This procedure is used when you want to configure the cards without configuring its DSLs.

LD 27 — Configuring an SILC or UILC

Prompt	Response	Comment
REQ	NEW	Add an SILC or UILC line card
TYPE	CARD	SILC or UILC line card
TN	c	Card slot location The values for this prompt are 1-20 Note: If this card is a SILC defined as the reference clock source for ISDN BRI trunk applications it must reside in the main cabinet (card slots 1-10). If the trunk is to serve as the primary clock source, it must reside on DSL 0. If it is to be used as a secondary clock source it must use DSL 1.
MISP	1-9	MISP card slot number
CTYP	SILC,UILC	Card type to be added

Configuring a trunk DSL

A DSL is added by specifying its port location and its DSL characteristics. A DSL port location specifies an SILC or UILC port that is connected to a DSL.

LD 27 — Configuring a trunk DSL

Prompt	Response	Comment
REQ	NEW	Add a DSL
TYPE	DSL	DSL
DSL	c dsl#	DSL location The values for this prompt are: cc (card)=1-20 dsl# (DSL number)=0-7 Note: You can assign only 31 DSLs for each MISP if you specified DCH or BDCH at the PH prompt in <i>MISP configuration procedures</i> .
APPL	BRIT,BRIE,XBRIE	Trunk application Defines the application which the DSL is provisioning. Enter BRIT for ISDN BRI trunking. Enter BRIE for BRI trunking for IFC = EuroISDN, QSIG, or APAC. Enter XBRIE to remove the loadware (all associated DSLs must be first removed for XBRIE).
CUST	0-31	Customer number
CTYP	SILC, UILC	Card type Note: This prompt is displayed only if the SILC or UILC has not been previously configured, or if another DSL has not been configured on the same SILC/UILC.
MISP	1-9	MISP card slot number This prompt is displayed only if the MISP has not been previously assigned to the specified SILC or UILC.

Prompt	Response	Comment
MODE	TE/NT	The mode for the trunk DSL. TE is entered for Terminal Equipment, NT is used for Network Termination. See the Trunk configuration figures earlier in this chapter to determine the Mode to be set based on the configuration you are implementing. This prompt is displayed only if SILC was specified as the card type. For UILC, this entry defaults to NT mode. For SILC, the default is TE. Note: Cannot change MODE from TE to NT if clock on DSL is referenced in the digital data block or DTI2/PRI2 system data. The reference must first be removed. If MODE is set to NT, CLOK will be set to NO.
MTFM	YES/(NO)	Enable/Disable multi-frame option. Prompted only if MODE=TE If enabled this prompt allows you to receive more diagnostic messages.
TKTP	TIE/COT/ DID	Trunk type
CLOK	YES/(NO)	Whether this trunk DSL is provisioned for clock source. The SILC must be residing in slot 1-10 in the main cabinet. This prompt appears if the following conditions are met: - the card type is SILC - the DSL# is 0 or 1 - the trunk DSL has been defined as TE mode Note: The clock prompt cannot be changed from YES to NO if the clock on the DSL is referenced in the Digital Data Block or the DTI2/PRI2 system data. The reference must first be removed.
TSET	(0)-15	Clock error threshold set Note: The threshold Set is currently not used. Press <cr> to accept the default 0 value.
PDCA	(1)-16	Pad table number (previously configured in LD 73) to be associated with this DSL

Prompt	Response	Comment
ROUT	0-511	Route number for the trunk DSL. The specified route must match the ISDN BRI trunk type specified at the TKTP prompt. If the DSL is in the NET mode (MODE = NT in LD 27), the entered route must be NET side (SIDE = NET in LD 16).
B1	YES/(NO)	Configure B Channel 1. If REQ = NEW, a response to this prompt is not required, because B1 parameters are mandatory. The system will display the following prompts.
MEMB	1-254	Route member number to be associated with B-channel 1.
TGAR	(0)-31	Trunk Group Access Restriction.
NCOS	(0)-99	Network Class of Service Group Number
CLS	aaa	Class of Service options. Possible inputs are as follows: APN = ACD Priority not allowed APY = ACD Priority allowed UNR = Unrestricted (default) CTD = Conditionally Toll Denied (valid for TIE trunks only) CUN = Conditionally Unrestricted (valid for TIE trunks only) FR1 = Fully Restricted class 1 (valid for TIE trunks only) FR2 = Fully Restricted class 2 (valid for TIE trunks only) FRE = Fully Restricted (valid for TIE trunks only) SRE = Semi-Restricted (valid for TIE trunks only) TLD = Toll Denied (valid for TIE trunks only). MRA = Message Registration Allowed (assigning meters to ISDN BRI sets, for Advice of Charge for EuroISDN, APAC (Australia and Japan), or Australia-AXE and Japan D70). MRD = Message registration denied. PGNA = Call Page Network Wide Allowed. (PGND) = Call Page Network Wide Denied. CUN, CTD, TLD, SRE, FRE, FR1, and FR2 are allowed only for TIE trunks. Input is accepted until <cr> is entered.

Prompt	Response	Comment
B2	YES/(NO)	Configure B Channel 2. If REQ = NEW, and the default of NO is entered to this prompt, all parameters entered for B1 will be applied to B2, except the route member number will be an unused value. The message "B2 will use Route # Member #" will be displayed.
MEMB	1-254	Route member number.
TGAR	(0)-31	Trunk Group Access Restriction.
NCOS	(0)-99	Network Class of Service Group Number

Configuring trunk clock reference source

In the case where an ISDN BRI trunk is providing a reference clock source to the system clock controller, the Digital Data Block (overlay 73) must be modified as follows.

LD 73 — Configuring trunk clock reference source, for 1.5 Mb PRI/DTI

Prompt	Response	Comment
REQ	NEW	Action request
TYPE	DDB	Digital data block.
CLKN	c	Card slot number of the DTI/PRI/MISP on which the clock controller resides
PREF	c	Card slot number of the PRI/DTI/SILC card from which the primary reference clock source is to be extracted and routed to the clock controller. If on SILC, DSL0 must be defined as trunk and CLOK = YES in LD 27.
SREF	c	Card slot number of the PRI/DTI/SILC card from which the secondary reference clock source is to be extracted and routed to the clock controller. If on SILC, DSL0 must be defined as trunk and CLOK = YES in LD 27.
...	...	...

Note: The items in the following table are only defined for systems that require 2 Mb DTI/PRI functionality.

LD 73 — Configuring trunk clock reference source for 2.0 Mb PRI/DTI

Prompt	Response	Comment
REQ	NEW	New settings
TYPE	DTI2/PRI2	Digital system data block.
FEAT	SYTI	Digital system timers and counter (only one set per system).
...	...	...
PERS	0-(100)-256	Persistence timer for group II problems.
CLKN	c	Card slot number for clock controller
PREF CK0	c	Card slot number of the primary reference clock for Clock Controller 0, from a PRI2/DTI2card. If on SILC, DSL0 must be defined as trunk and CLOK = YES in LD 27.
SREF CK0	c	Card slot number of the secondary reference clock for Clock Controller 0, from a PRI2/DTI2/SILC card. If on SILC, DSL0 must be defined as trunk and CLOK = YES in LD 27.
...	...	...